

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

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| | | |
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| Applicant's or agent's file reference SAJ1001WO | FOR FURTHER ACTION <small>see Form PCT/ISA/220 as well as, where applicable, item 5 below</small> | |
| International application No. PCT/US04/23167 | International filing date (day/month/year) 01 July 2004 (01.07.2004) | (Earliest) Priority Date (day/month/year) 08 July 2003 (08.07.2003) |
| Applicant SUPERSONIC AEROSPACE INTERNATIONAL, LLC | | |

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the Report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☒ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box No. II)

3. ☒ Unity of invention is lacking (See Box No. III)

4. With regard to the title,

☒ the text is approved as submitted by the applicant

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No. 1A

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of Item 3 of first sheet)This International Searching Authority found multiple inventions in this international application, as follows:
Please See Continuation Sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest



The additional search fees were accompanied by the applicant's protest.



No protest accompanied the payment of additional search fees.

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BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I, claim(s) 1-17, drawn to acoustic levels

Group II, claim(s) 18-41, drawn to sensor transformation and scenery outside a device.

Group III, claim(s) 45-60, drawn to user interface utilizing exclusive and common window displays.

Group IV, claim(s) 61-67, drawn to cleaning a camera housing using a cleaning mechanism.

The inventions listed as Groups I, II, III, and IV do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

There is no special technical feature which unifies all the inventions. In particular, there is no common contribution which links each of the invention as a whole over the prior art where each invention corresponds to the claim groups. Group I deals with acoustic levels based on the current operation conditions for navigation and flying aircraft. Group II deals with transforming sensor viewpoints and fields of view to view scenery outside of an aircraft. There is no special technical feature between claims Group I and Group II. Group III deals with a plurality of mutually exclusion windows and a common user interface and common display area and deal with the customization of this interface for displaying operational information. Group III and Group I both teach of displaying operation information in an airplane interface however this is not itself a contribution over the prior art. Group III does not share with Group II the contribution of viewing scenery outside the aircraft using a plurality of cameras. Group IV deals with a cleaning mechanism for cleaning a camera housing. Group IV does not share the special technical feature of using acoustic levels with navigation and displaying acoustic data on an interface with Group I. Group IV and Group II both deal with using cameras outside an aircraft for navigation however this itself is not a contribution over the prior art. Lastly, Group IV does not share the special technical feature of customized user interfaces with Group III.

Continuation of B. FIELDS SEARCHED Item 1:

345/629, 419, 632, 633, 952, 427, 428; 434/30, 35, 36, 38, 41; 340/948, 951, 952, 953, 954, 963, 965; 703/3, 13; 244/1N, 174, 175; 381/39, 94.1, 94.9, 318/443

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Box IV TEXT OF THE ABSTRACT (Continuation of Item 5 of the first sheet)

The technical features mentioned in the abstract do not include a reference sign between parentheses (PCT Rule 8.1(d)).

The abstract is too long (PCT Rule 8.1(b)). The abstract must be less than 150 words, or 200 words when no figure is to be published.

A display system for a operating a device receives images from sensors (110) that represent scenery outside the device and is configured to detect moving objects in sensor images, as well as fuse (222) the images to a single viewprint (224). The display system generates a plurality of mutually exclusive windows (120, 122, 124) which include a common user interface and display area (706, 714, 718). The system receives information regarding current flight conditions of the device such as an aircraft and determines the acoustic level of the sonic boom and/or other noise generated. The current acoustic level is compared to a desired level (904), and various cues are displayed (928) to operators regarding corrective actions to the acoustic level. A cleaning mechanism (1224) removes obstructions from a transparent aperture on a housing (1212) enclosing the sensors.

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| A. CLASSIFICATION OF SUBJECT MATTER | | |
|--|--|--|
| IPC(7) : G09G 5/00 US CL. : 345/629, 427 | | |
| According to International Patent Classification (IPC) or to both national classification and IPC | | |
| B. FIELDS SEARCHED | | |
| Minimum documentation searched (classification system followed by classification symbols) U.S. : Please See Continuation Sheet | | |
| Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched | | |
| Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EAST. US-PGPD, USPAT, USOCR, EPO, JPO, DERWENT, IBM TDB, ACM, IEEE | | |
| C. DOCUMENTS CONSIDERED TO BE RELEVANT | | |
| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
| X | US 4,887,298 A (Haigler) 12 Dec 1989, col 3, lines 42-64, figure 2, page 12 | 1, 5-9, 12-15 |
| X --- Y | GUBILI, JEFF; "FILO (FLying Infrared for Low-level Operations) an Enhanced Vision System", presented April 2000 at SPIE AeroSense Conf 2000 in Orlando, Florida; figs 1, 5, 6, pg. 32, 33, 35 | 18, 23, 24, 27-38, 40, 41 ----- 19-22, 25, 26, 39, 42- 19-22, 25, 26 |
| Y | NASA, Nasu's High-Speed Research Program, The eXtremal Visibility System Concept, NASA facts online, http://ocw.fact.nasa.gov/TAIS/ISR-Cockpit.html , 1st page, 2nd paragraph and all of 2nd page including bulleted list | 18-30 ----- 39, 42-44 |
| X --- Y | US Patent 6,466,235 B1 (Smith et al) 15 Oct 2002, Figs 3, 5, 8, 9, Col 2, lines 14-25, 33-36, Col 3, lines 38-39, Col 4, lines 22-24, 32-36, Col 5, lines 30-35 | 18-30 ----- 39, 42-44 |
| X A | US 6,405,975 B1 (Sankrithi et al) 18 June 2002, Figs 6, 11 and 12, Col 2 lines 10-12, col 5, lines 25-26, col 9, lines 5-6, 23-30 US 2001/0048763 A1 (Takatsuka et al) 6 Dec 2001 | 61-63, 65-69 |
| <input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex. | | |
| Special categories of cited documents | | |
| "A" | document defining the general state of the art which is not considered to be of particular relevance | "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principles or theory underlying the invention |
| "B" | earlier application or patent published on or after the international filing date | "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone |
| "I" | document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) | "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art |
| "C" | document referring to an oral disclosure, use, exhibition or other means | |
| "D" | document published prior to the international filing date but later than the priority date claimed | "G" document of the same patent family |
| Date of the actual completion of the international search 01 September 2005 (01.09.2005) | | Date of mailing of the international search report 27 OCT 2005 |
| Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230 | | Authorized officer Ulka J Chaudhan Telephone No. (703) 305-3900 <i>Kenai</i> |

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